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A convenience in the arrangement of the book is the list of the (75) genera, placed under their respective suborders and tribes, which is given at the beginning. The generic characters are given in as few words as is consistent with intelligibility, and the species are described in much the same manner, all the words of frequent use being abbreviated. The greater part of the extensive synonomy, which is often of a complicated character, is left out.* The species of Hymenophyllum and Trichomanes, which have been so much multiplied by certain authors, are here reduced in the ratio of something like two hundred to five hundred. The group of ferns called Phegopteris is here considered as a part of the genus Polypodium. We should much prefer to see the view of the lamented Mettenius adopted, that they are exindusioid Aspidieæ, with which they agree in aspect and other characteristics, and where so many of them have been absorbed by the discovery of an indusium.

The inclusion of the suborders specially mentioned in the title is a great boon, for here we have them, for the first time, comprehensively described. — H. MANN.

THE PAST AND FUTURE OF OUR PLANET.† — The author says, in his preface, that he has freely used the writings of Lyell, Owen, Hall, Dana, etc., "as they had done the writings of others." Now these are the names of men who have grouped the written opinions of others around a nucleus of their own original investigations, whereas Mr. Denton has no such nucleus, the whole being a compilation. As such, however, it will be found of value to the general reader, since it brings together, in a popular manner, the researches which have been made in the geology and palæontology of the United States, and which can only be found elsewhere in Professor Dana's unsurpassed Manual of Geology.

The author adopts without question, the disputed view that the earth is a molten mass covered by a thin crust, in spite of Lyell and Hopkins.

The successive order of the appearance of animals is given as Radiates, Mollusks, Articulates, and Vertebrates, whereas it is well known that the three first appear simultaneously. The Protozoa are wholly ignored and although it is rather too soon to speculate about them, we think the author ought, at least, to have made more than a passing allusion to the important discovery of the Eozoön. Trilobites are said to have no feet, whereas every naturalist supposes that they must have had soft rudimentary appendages, and some have supposed that they made the tracks found in the Potsdam sandstone and elsewhere.

The explanation of the different ages of granite is very apt to mislead the reader into the belief, that the more modern granites have only been formed in the centre, and spouted up in veins through the later rocks, whereas it occurs in masses just as the older granites occur, and not differing except in age.

The illustrations are extremely poor, but the lectures are popular, likely to interest and please uninstructed minds, and with the exceptions noted, we think are reliable. The chapter on the future of our planet is an imaginative picture of the manner in which mankind may eventually utilize the forces of inorganic nature.

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* The student is expected to refer to the Species Filicum for that.

† The Past and Future of our Planet. By William Denton. 8vo, pp. 344. Boston, 1868.

THE FAUNA OF THE GULF STREAM AT GREAT DEPTHS.*—The investigations ordered by the new Superintendent of the Coast Survey, Professor Pierce of Harvard College, into the marine fauna of the Gulf stream, in connection with the regular duties of the survey, have begun to produce its natural result, in such valuable contributions to science, as we have now before us. The line of the present survey was "in a section between Key West and Havana, incidentally with the purpose of sounding out the line for the telegraph cable." Although the work was interrupted, and the casts made with the dredge few, "the interesting fact was disclosed, that animal life exists at great depths, in as great a diversity and as great an abundance, as in shallow water." By two casts in two hundred and seventy fathoms off Havana, Crustacea and Worms, numerous dead shells of Gasteropods and Pteropods, living Terebratulæ, and seven species of Bryozoa, besides Echini, Starfishes, and an abundance of Corals, Hydroids, and Foraminiferæ were taken. Only one species of sea-weed, however, was mixed with this luxuriant animal life, which corresponds with similar results of deep sea dredging in the European seas, and shows that "the greater number of deep sea-animals must be carnivorous." They found, also, that a porous limestone was in process of formation, "composed apparently of the remains of the same animals which were found living." In a cast made in three hundred and fifty fathoms, nothing was brought up but a few dead corals. "The Echinoderms appear to have a wide distribution in depth," and the Gorgonias (sea-fans) are represented in two hundred and seventy fathoms, by at least two species known to belong to the West Indian fauna, in moderate depths. The results of this attempt are certainly very interesting and important to marine zoölogy, although no casts were made in the deepest parts of the channel.

With our present knowledge, it is premature to assume the existence of the higher forms of animal life in the profound abysses of the Atlantic and Pacific Oceans, but dredging in the Gulf of Mexico may be carried to such a depth as to have a most important, if not decisive bearing upon this question, since the Coast Survey have sounded over nine thousand feet in one instance, and several times to the extent of six thousand feet.

Dredging has been very recently carried on at enormous depths by the Scandinavian expedition to Spitzbergen, for it is stated, in the November number of the Annals and Magazine of Natural History, that Messrs. Malmgren and Smitt have dredged up a variety of animals from a depth of 2,000 feet, near Spitzbergen.

THE BUTTERFLIES OF NORTH AMERICA.—The second part of this beautifully illustrated work has appeared, and we desire again to commend

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*Bulletin of the Museum of Comparative Zoology. No. 6. Contributions to the Fauna of the Gulf stream at great depths. By L. F. Pourtales, Ass't U. S. Coast Survey.